"WHAT KIND OF WORLD DO WE LIVE IN?"

NOTES FOR REMARKS

BY

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The span of human attention has never been very long. (This morning we may find that it is unable to accommodate even the length of this lecture!) In an almost visceral sense we keep track of seasons, mark the birthdays of our children, and fuss when traffic congestion adds a few extra minutes to our daily commuting toll. But we monitor these events with little sense of accuracy and seem to be increasingly vague in our measurement of change over time. "Winters aren't as cold as they were when I was a kid." "They don't make things as well as they used to."

There may be several reasons for this vagueness. For one, our attention span increasingly is being shaped by television units: one hour programs, one week intervals. Again, as scientists develop the means increasingly to measure accurately faster speeds and shorter time periods, our interest is captured by precise, almost momentary imagery: micro-seconds, millimetres. And, certainly, in democratic regimes, where electoral periods range from two to six years, both politicians and businessmen find it inconvenient to think, plan, or act in longer segments.

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Fiscal years and electoral mandates become, de rigueur, the maximum fraction of time for analysis and reflection. Events of longer duration are ruled out.

Is the world we live in today a more wholesome, more secure, more civilized place than it was a year ago? An honest answer would acknowledge that the interval is too short to make a meaningful appraisal. Increasing the period doesn't make the question an easier one. Is the world a better, or worse, place than it was 25 years ago, or will be 25 years in the future? Those intervals, sadly, are so far beyond the operational limits of most decision-makers that they are quite irrelevant to what they think and do. A century ago, such indifference to time was perhaps without meaning. Today it could be suicidal. This morning, I invite you to focus, even if only fleetingly, on time spans beyond the familiar.

The history of humankind is the proud record of many brilliant accomplishments: the arithmetic concept of zero, Mozart's piano concertos, the courageous voyages of exploration by Cartier and Champlain, the discovery of insulin by Banting and Best, the political symmetry of the

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United States Constitution. That same history is as well the bleak account of stupidity and savagery, of hypocrisy and chicanery. Barbarity has never lacked its proponents, acting always for the greater glory of something - God, sovereignty, ideology, markets. Examples abound: the Children's Crusade, the inquisition, the slave-trade, Hitlerism, Stalinism.

Arrogance and ignorance, daring and resolve; these have been ingredients of mankind's quest for permanence. They have led to technological achievements beyond the imagination of any prophets, and standards of living in the industrialized nations more comfortable than any in history. They have also decimated the tropical rain forests, advanced alarmingly the African deserts, and engineered a nuclear Damocles' sword that places in jeopardy the very continuance of humankind.

Few of these accomplishments - be they positive or negative - are measurable as constants on a monthly or even annual scale. How, even, does one measure the comparable cost-benefit ratio of a growth economy and a polluted environment, of a functioning deterrent to war and the

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threat of a nuclear holocaust, of protected local industries and growing third-world anguish? Are we able even to discern major trends in time to modify them? Can the world develop the equivalent of time-lapse photography to permit decision-makers to observe the long-term effects of seemingly anodine activities and actions? How can we project into the future the effects of activities not yet undertaken?

Brock Chisholm, the Canadian who was the first Director-General of the World Health Organization, argued that the ability to see ahead, and to plan accordingly, was an ingredient of maturity. Infants, he said, may anticipate their next meal, but no more. Pre-schoolers can look forward to special events like birthdays or Christmas. Adolescents are already planning their life-work, and mature adults take steps to contribute to a preferred future for their own offspring. It is the transfer of this forward view from the individual to the community as a whole that is now needed.

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The expression "about as exciting as watching paint dry" is often used to indicate the absence of excitement. There's not much excitement in tracking the changing pH values in fresh-water lakes, or in measuring the degradation of prairie soils. And particularly not for politicians, because the variation in any four year period is minor. Who, then, is to speak for the future, for Brock Chisholm's great grandchildren? In the past century, those prairie soils have lost fully one-half of their nutrient content. Who was responsible? Do we have any sort of mechanism to ensure that that rate of deterioration is not continuing?

Looking forward for a period of one or two decades is understandably difficult for governments accountable at the end of four or five year periods. Nevertheless, we must never forget that the greatest of statesmen kept their eyes firmly on distant horizons. Churchill and Roosevelt, in the depths of World War II, looked ahead. In August 1941, aboard HMS Prince of Wales anchored in Placentia Bay, Newfoundland, they issued the Atlantic Charter which called for post-war political and economic objectives which, at

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San Francisco in 1945, were melded into the United Nations Charter: renunciation of force, political self-determination, economic collaboration, a system of general security, disarmament.

Today the U.N. does not enjoy universal acclaim, and not always for good reason. Those who denounce most vocally its failures seldom recall its achievements in the work of the specialized agencies, its great treaty-creation triumphs, its peacekeeping accomplishments, its undoubted ability to identify issues and focus attention, its irreplaceable role as a forum for debate and negotiation no matter how sterile those sometimes are. And sadly, those who are most critical of the U.N. offer no alternative but national muscle.

That same summer of 1945 that gave birth to the United Nations was the beginning of the nuclear age, a step by humankind into an era which it did not understand then and scarcely comprehends now. An era qualitatively so distinct from the past that one understands the confusion and the contradictions that permeate military planning. Understand, perhaps, but not accept.

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Contradictions in today's world are not just nuclear. Our willingness, perhaps our inability, to utilize our resources for the benefit of human beings has placed us in a world of extraordinary discrepancies between luxury and depravity. A world of unimaginable suffering which has produced at this moment 13 million refugees worldwide; life expectancies of less than 40 years as in Sierra Leone or Guinea (both 38); infant mortality rates in excess of 150 per 1,000 as in Mali (176) or Ethiopia (172) (compared with 6 in Finland or 9 in Canada); per capita GNP of less than US$200 per year as in Burma (180) or Bangladesh (130) (compared with US$16 thousand in Switzerland or US$15 thousand in the United States). A world of tumult and unrest, one which promises much but betrays often. A period which has been compared to the 13th century when chivalry flowered even as the inquisition was introduced as a barbaric instrument of legal process. That century included Magna Carta, the Cologne Cathedral, and Genghis Khan. There is a major difference, however, between then and now. Armies in the 13th century were equipped with swords, not nuclear weapons.

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Today, many parts of the globe flicker and flame with war and unrest. Sometimes civil, sometimes on frontiers, sometimes incited from without, always creating immeasurable human tragedies. The high expectations for the return of democracy in Haiti and the Philippines are yet fully to be met. U.N. peacekeeping or observer forces remain on duty in Cyprus, in Kashmir, in Palestine and in Lebanon. Lebanon serves as an example of the savagery of terrorism in a powder keg of rivalries between peoples and governments. The Iran-Iraq war enters this month its seventh year. Military activity continues in Ethiopia, in Angola, in Namibia, in the Western Sahara, and is intensifying in the Southern Sudan where there are now present more than 1 million refugees. The apartheid paranoia of the white supremecists in South Africa is leading that region to anarchy and tragedy. The Punjab is uneasy, if not in revolt, while to the south, in Sri Lanka, Tamil separatists and government forces exchange barbarities which have implications that have already reached Canadian shores. In the west of Asia Soviet forces continue their savage occupation of Afghanistan, while in the east of that

continent, Vietnamese forces are active in Kampuchea, and dissidents defy central authority in northern and eastern Burma.

The western hemisphere is scarcely more quiescent. Brutal "Shining Path" guerrillas operate in and out of the Peruvian Andes. Repressive military dictatorships occupy office in Chile, Paraguay and Surinam. The enormous wealth of the United States narcotics market has provided the financial incentive for massive illegal drug operations in several countries which threaten even established democratic regimes.

Central America is a theatre of brutality with power struggles of grievous quality in El Salvador, Nicaragua and Guatemala. Principle is mocked and humanism defiled.

In Europe, the 25th anniversary of the construction of the Berlin Wall is a testament to the contrasts in beliefs between Western and Eastern societies. In Northern Ireland, a remnant of centuries-old religious strife bedevils society.

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Across all this lies the heavy shadow of the central-Europe confrontation between the forces of NATO and the Warsaw Pact, both armed with conventional, chemical and nuclear weapons and backed by strategic ballistic missile systems of overwhelming destructive power.

Where does one begin to look at this confusing world? I invite you to view it with me from four different perspectives:

I The Human Environment,

II The Economic Environment,

III The Physical Environment, and

IV The Military Environment.

If any of you are still in the room at the end of all that, I'll attempt some conclusions.

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ITEM - THE HUMAN ENVIRONMENT

This item in my catalogue of indicators of the state of the world not only concerns people, it is people. A lot of people. During the third week of July, the world's population rose to 5 billion. The size of the planet did not increase, nor will it. Creative as humankind is, it is not able to extend the size of Earth in the same way we build an addition on a house as a family grows.

In August, 1984, in Mexico City, the World Population Conference convened its second decennial meeting. That event precipitated a number of studies and analyses of a current and a projected nature. A number of these studies attempted to penetrate raw population figures and relate them to such critical factors as land unit carrying capacity, food production, and urban services. Much of the data is interesting, a good deal of it is of vital importance. To quote the World Bank's World Development Report 1984, "Population growth does not provide the drama of financial crisis or political upheaval, but

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... its significance for shaping the world of our children and grandchildren is at least as great."

Demographic projections must be made with care; so, equally, should comments about the effects of population growth. I shall endeavour to be prudent in both respects. Historic data, by contrast, is hard evidence and therefore doubly useful in interpreting change. Figure 1 contains something of the past as well as something of the future. The transition occurs at the beginning of the broken line.

From pre-history until about 1000 AD, the world's population did not increase by much. In earliest times, life was so precarious, and food supplies so unreliable, that a rough balance obtained between births and deaths notwithstanding an undoubtedly high fertility rate. The introduction of agricultural practices about 8000 BC lent a greater certainty to food supply but was for a long time largely offset by recurring crises of other natures - plague, war, etc. As the figure shows, population growth was modest for many centuries - from about 300 million at the time of the birth of Christ to some 800 million in the mid-eighteenth century. The doubling period was about 1,500

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years. An equally important phenomenon is the fact that the rate of growth was approximately the same in all regions of the world.

From about 1850 onwards, growth accelerated immensely. Mortality decreased with the advent of science and technology. The next doubling period was reduced by 90%, the world required only 150 years to grow from 800 million to 1.7 billion in 1900. That accceleration has continued. By 1950 the figure had reached 2.5 billion. By 1980, 4.8 billion. Doubling, that once had taken 1,500 years, had now been accomplished in 30.

Switching to projections, the World Bank states authoritatively that the best estimate for the year 2000 - less than 15 years from now - is another billion and a half, for a total world population at the close of the century of 6.2 billion. Those figures are difficult to digest. They work out to an annual increment of some 100 million persons. One hundred million is about the population of Bangladesh. From now to the turn of the century, then, the world's population will grow by the equivalent of one new Bangladesh every year.

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Since 1950, another important distinction has become apparent. The longstanding, roughly parallel, growth rates between countries industrialized and developing ceased. From 1750 to 1850 the two groups were not that far apart: 0.6% annual growth rate for the nations of Europe, North America and Japan, 0.4% for Africa, Asia and Latin America. Each group eased upwards in the next century from 1850 to 1950: 0.9% and 0.6% respectively. From 1950 onwards the change has been startling. Between 1950 and 1970 the growth rates increased and reversed. The North grew at 1.1% annually, the South at 2.2%. Some regions in the South were well ahead of the average. The states of Central America, for example, grew at an annual rate of 3.2% between 1955 and 1975, a rate that would increase the population by a factor of 24 if sustained for a century. Obviously, that rate is not sustainable. Nevertheless, accepted projections distribute the population for the year 2000 - 6.2 billion - as 4.9 billion for the developing countries, 1.3 billion for the industrialized countries.

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As the developing countries share of world population grew, their share of production dropped: from 44% in 1800 to 19% a century later and to 17% in 1950. In 1980 the share had risen to 21%, but the population share was 75%.

The linkage between fertility and income is dramatic as illustrated in Figure 2, which emphasizes the clear drop in fertility as per capita incomes increase.

Another comparison between North and South is equally salient. The current size of those developing countries now at the threshold of industrialization and in the infancy of self-government is immensely larger than was the case for the Northern countries at a comparative moment of their history. India is now 720 million, Indonesia - 155 million, Nigeria - 90 million, Mexico - 75 million. In 1800, by comparison, France was about 30 million, Britain 10 million. In 1850 the United States was about 24 million, Japan 30 million.

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The challenges to contemporary developing country governments are thus incomparably greater than those to the now industrialized countries at an equivalent time in their history. Not only are populations several-fold larger but instant communications reveal to the poor the contrast of living standards with the better off. In all countries, North and South, governmentally-imposed curtailments of freedom have followed on population growth; zoning laws, emission standards, water and land use, are among those well known to everyone in this room. Authoritarian measures in countries with populations much greater than Canada's are not, therefore, entirely without precedent. Nor should we be surprised if they increase, as they will, even in the democracies.

The carrying capacity of the planet earth is not of infinite proportions. The earth's ability to provide food will be a critical control factor if population increases are not restrained in other ways. A recently-concluded major research project commissioned by the United Nations Fund for Population Activities (UNFPA) and carried out by the U.N. Food and Agriculture Organization (FAO) bears on this issue. It found that in 1975 there were 54

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countries unable to feed their then existing populations from their own lands employing traditionally low level inputs of such items as fertilizer, mechanization, pesticides, etc. The 1975 population of those 54 countries was 1.072 billion. The researchers calculated that a quarter of these people were in excess of the land's then carrying capacity.

Projected to 2000, population increases will increase the number of countries unable to feed their populations at low inputs to 64. The affected population will be slightly less, however, - 1.054 billion - mainly because of the completion in the interim of extensive irrigation projects in some countries. On the other hand, the percentage of people in excess of the carrying capacity will have doubled, from 25% to 50%, so that the net numbers of humans in misery will be much greater.

Such figures, of course, are subject to several cautionary remarks. First, circumstances vary considerably from region to region as could be expected from the distribution of arable soil. Second, enhanced agricultural inputs would have the effect of increasing production

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dramatically. For example, if inputs were increased from a low to an intermediate level, that list of 56 countries unable to feed their populations would drop to 24 and the affected population would drop from 25% to 4%. Third, a range of factors which has the effect of departing downwards from optimum productivity must be considered. The research study was based on the cultivation of 15 major food crops, primarily cereals. All land, however, cannot be dedicated to grain crops. Some is necessary for vegetables, more for fibres, a good deal for firewood (in agro-forestry applications), some for fallow, and an increasing percentage for fodder for animals. This latter figure is now in excess of 25% of the entire harvested area in developing countries. Each of these demands upon the land decreases the size of cereal yields.

The International Food Policy Research Institute released a significant study earlier in the summer which projected a year 2000 scenario based upon trade, production and consumption statistics in 105 developing countries relating to the basic food staples: cereals, roots and tubers, pulses, groundnuts, plantains and bananas. The IFPRI report projects a turn of the century annual Third

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World production shortfall in basic food staples of 70 million metric tons. This shortfall will have to be made up of imports from the industrialized countries. In 1966-70, that shortfall averaged 12 million metric tons a year. A decade later, in 1976-80, the shortfall had increased to 38 million metric tons. If the projection is correct, this figure will double by the year 2000. (By way of comparison, Canada last year exported 17.6 metric tons of wheat and wheat products.)

One of the reasons for decreases in agricultural productivity is the small unit size of so many peasant farms - the result of increasing population and decreasing arable land. In Syria, for example, freehold land titles average 3 hectares each, and consist of 4 to 10 non-contiguous plots. Similar circumstances are not uncommon throughout the developing world.

However these statistics are interpreted, whether these studies prove accurate or otherwise, one conclusion is beyond challenge. Rapid population growth - at rates above 2%, common in most developing countries today - is, in the words of the World Bank "a brake on development".

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Nowhere is this brake more evident than in the metropolitan areas of the developing countries. In 1960, for example, there were three cities in Africa with populations of more than 500,000. Today there are 28. Worldwide, mega-cities are overwhelmingly in the South. Of the 25 cities in the world with a current population of more than 7 million, 16 are in developing countries, including the largest, Mexico City, at 18.1 million. By 2000, Mexico City is projected to grow to 26.3 million - the population of Canada - and 45 of the 60 largest cities will be in the South, 18 of them larger than 10 million.

Faced with numbers of this magnitude, the provision of basic services on an equitable basis becomes absolutely impossible. Squalour and depravity increase. Political instability grows. And the future is placed in jeopardy. By 2000, 51.2% of the world's population will be urban. And that population will be young. Half of all people alive at the turn of the century will be under the age of 25. In the developing countries, 35% of the total population will be under 14. In ever-increasing numbers these youths find themselves on the streets: abandoned,

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uneducated, unemployed, alienated from any societal norms, without any loyalties except to their own gang.

In a recent report on the subject of street children, The Independent Commission on International Humanitarian Issues said "The fate of the street generation is inseparable from the uncertain fate of cities. Bursting or decaying, they were never built with the needs of children in mind. Today, the nation of man as the measure of all things has long vanished from urban life, and huge urban agglomerations have become increasingly inhuman and unmanageable." One hundred years after Dickens, the phenomenon of street children has returned in numbers far in excess of anything known to Oliver Twist.

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ITEM - THE ECONOMIC ENVIRONMENT

A decade ago, most references to economic issues still utilized a national - or, at most, regional - perspective: the Canadian economy, the Japanese economy, the European economy.

Today, increasingly, one speaks of the "world economy". The World Bank in its current World Development Report states that "the world economy is in an uneasy and unsettled state." Paul Volcker, Chairman of the United States Federal Reserve Board testified in late July that the world economy suffers from a "massive international disequilibrium." Peter Drucker, the highly respected management consultant, wrote earlier this summer in "Foreign Affairs": "From now on any country - but also any business, especially a large one - that wants to prosper will have to accept that it is the world economy that leads and that domestic economic policies will succeed only if they strengthen, or at least do not impair, the country's international competitive position." The same opinion had earlier been stated by Robert Hormats, a New York investment banker, who wrote a year ago that "More than at any time in

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this century, U.S. economic well-being depends on conditions abroad."

But are national political leaders paying attention? UNCTAD's 1986 Annual Report, issued on August 11, stated: "In the 1980s, countries policies, on the whole, have been framed without regard to their international consequences."

A global perspective was strongly recommended by the Brandt Commission in its first report. The origins of that perspective may be found in the observations of a number of astute actors who for some time had been emphasizing the fact of economic interdependence, and encouraging the beginnings of a global economic consciousness. John Maynard Keynes and Jean Monet are two prominent members of that group.

Notwithstanding the brilliance of persons such as these, however, long-held conventional views are slow to disappear. The cherished belief that the major economic powers are able to act with impunity independently of one another did not begin to give way substantially until the

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late seventies with the birth of the annnual Western Economic Summits and the structure they fashioned for the broad coordination of economic policies. This group was much more tightly knit, for example, than the OECD. Still more was needed, however, to persuade decision-makers and publics of the mutual vulnerability of national economies. The collapse of oil prices, the sudden impact of debt burdens and the financial crises of a number of developing countries brought the message home. The economic health of the Big Seven was seen to be very much a factor of economic performance in far away places. The inability of the developing countries, particularly in Latin America, to maintain their imports from the United States resulted in the loss, directly and indirectly of more than one and a third million U.S. jobs in the period 1980-84, according to the U.S. Overseas Development Council.

Interconnectedness and interdependence were suddenly acceptable terms. Assumption of economic responsibility, however, remains an elusive goal, one repugnant to the short term political interests of European Community governments and to the U.S. Congress.

This, notwithstanding that in a period of only three years, the United States changed from the world's largest creditor to the world's largest debtor. As its federal deficit soared, spurred by huge military expenditures, interest rates climbed and investment capital flooded in. Coincidentally, those same interest rates kept up the value of the U.S. dollar in international markets and acted indirectly as an immense stimulus to foreign manufacturers. The U.S. merchandise trade deficit has sunk to record lows leading to huge losses in sales and drops in employment. Partly because of price, partly because of inefficiencies, the United States steel industry, as one example, has suffered losses of $7 billion since 1982; steel industry employment has dropped from 450,000 to 200,000 in seven years.

Simultaneously, the outstanding debt of the developing countries has soared. It increased another 67 million dollars in 1984, reaching 970 billion late last year. Of even more critical importance, the debt service ratio climbed from 16.1% to 21.9% between 1980 and 1985.

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The most-welcome Baker initiative proposed at the 1985 annual meeting of the World Bank and the International Monetary Fund, an initiative which marked a major reversal of U.S. foreign economic policies, appears now to be running out of steam. The sum proposed for the fund - $29 billion - is inadequate but still beyond the apparent ability of creditors to raise; the list of eligible countries is regarded as selective and insufficiently broad. In the meantime, against the warnings of such leaders as President Garcia of Peru, country by country renegotiations and roll-overs are underway. Terms of trade for Latin American countries are deteriorating; down 16.5% between 1980 and 1985 according to the Economic Commission for Latin America, making next-to-impossible national solutions to debt problems.

And the circle is closing. In the first quarter of 1986 Japanese GNP fell at a 2% annual rate after correcting for inflation. In the Federal Republic of Germany, GNP fell at twice that rate. In the United States, economic growth was positive rather than negative but in the second quarter increased at an annual rate of only 1.1%, far less than the Administration had predicted.

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Worldwide, investment in new plant is stagnating, and unemployment defies attempts to reduce it. One of the structural factors responsible is the exploding U.S. federal deficit. Gross U.S. federal debt passed through the trillion dollar threshhold for the first time in history in 1981. In less than five years since, it has more than doubled, to more than 2,112 billion dollars. Budget deficits as a percentage of GNP have shown a disturbing tendency to increase in 5 of the 7 Summit countries in this decade. In only Japan and the Federal Republic of Germany are they lower than in 1979. While the largest deficit is, of course, in the United States, far and away the largest in percentage terms is that of Italy at 13.1% in 1985. Canada is 6%. The United States is 3.7%.

At the very moment that national legislators are focussing their attention on national barriers to free trade, capital markets have become global, linked by sophisticated computer and satellite-communication networks. As the earth rotates, traders in Tokyo, Singapore, Frankfurt, London, New York, Toronto, and San Francisco buy and sell all forms of financial paper: equities, debentures, currencies themselves. The market is fuelled by

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immense pools of institutional savings. Private pension funds in the OECD countries now exceed US$1.4 billion and will double in the next five years.

One observer has commented: "At its worst, this new global financial order is accountable to no one. Sharp-eyed young technicians handle billions of dollars of money each day, often without really knowing to whom that money belongs. They are intensely profit-oriented and arbitrary, and the money they control can be subject to wild flights or harrowing crashes based on rumours and hunches." The 1984 failure of the Continental Illinois Bank - which led to the largest single government bail-out of a private sector enterprise in history (US$4.5 billion) - began with a rumour on the commercial paper market in Tokyo. The rumour was unfounded but by the time the bank opened for business in Chicago eight hours later, its deposit base was a shambles.

Although evidence of this quality of economic interdependence is indisputable, the spectre of protectionism and unilateral intervention in international markets is increasingly vivid. The early-August decision of

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the United States government to offer to the Soviet Union heavily-subsidized wheat at much less than world market prices is an example of how aberrant these processes are. Moreover, the self-inflicted wounds which are the result of acts of this kind reveal the barrenness of so much of current international economic policy. Ironically, at the very moment that the industrialized countries are endeavouring to protect from competition inefficient or non-competitive industries, and reducing the impact of unwise policies in the highly-efficient agricultural sector, the world economy may well have advanced into a new phase.

Far and away the fastest growing sector of our economies in terms of job-production and absolute share of GDP is the services sector. In the Province of Ontario - Canada's most highly industrialized province - services represent more than three-quarters of all economic activity. That figure is about the same for the United States as a whole. Manufacturing, then, is not nearly so important a source of jobs as it once was. The reason is not found in the lower wages of developing country competitors. It is much more because the labour content of manufacturing, and particularly the newer, high-tech, segments of

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manufacturing, are increasingly being lowered. Protectionism against the imports of manufactured goods, therefore, does little to stimulate employment within a country. Its chief effect is to increase the cost of goods to one's own consumers, and to perpetuate inefficiencies in opposition to the normal functioning of the market place.

Let's examine some specifics of the linkages which fasten inextricably the economic performance of one region to the others. Those immense debts owing by so many developing countries, for example, are in large measure owed to northern financial institutions. The profitability, even the stability, of some of these banks and financial houses will be in jeopardy in the event of default or suspension of payments. The major focus of concern is South America where foreign debt increased from 27 billion US dollars in 1970 to 386 billon in 1985. Some 18 billion of the debt is held by Canadian banks. Because these debts are denominated for the most part in United States dollars or other foreign currencies, the debtor nations must generate funds for servicing them through the sales abroad of their manufactured goods and their commodities. The task is monumental, yet only one part of a complex of economic

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challenges. Protectionism hinders the exports of manufactured goods. Plummeting prices for commodities have produced a crippling effect on a number of well-managed economies.

It is difficult to comprehend adequately the depressant effect of many tropical commodities. Tin prices, for example, fell more than £5,000 per tonne in a four month period last winter. The London Metal Exchange almost collapsed as a result. The index of tropical commmodities (1979-81 = 100) is distressing. For May 1986, the most recent figures available from UNCTAD indicate that food products stand at 64, agricultural raw materials at 79, minerals, ores and metals at 69, and oilseeds and oils at 49. Only tropical beverages are up, at 116, led by strong coffee prices following Brazilian weather and production problems. The 1985 dollar prices for tropical commodities - crude oil is not included - were 27% lower than five years earlier. (The early August upsurge in the prices of some precious metals is a direct result of the South Africa crisis and will not benefit developing countries.)

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It is perhaps too early to state definitively, but the long-respected Kondratiev Cycle linking commodity prices in the developing regions and manufacturing activity in the industrialized regions seems now to be severed. This leaves the less resilient economies of the developing countries in an unenviable and unpredictable circumstance. And it transfers quickly to the OECD countries all the problems associated with debt forfeiture, contraction of export markets, social unrest and political instability.

Latin American imports dropped from US$100 billion in 1981 to US$56 billion in 1983. From 1983 to 1984, the value of imports of developing countries worldwide was down 3.6%. The trend is continuing, and is most dramatically evident in the United States merchandise account. The deficit there in 1985 was US$148.5 billion. In the first half of 1986, the deficit continued. At an annual rate, the June figures predict a deficit of 170 billion. Even after "invisibles" are added - interest, dividends, royalties, etc. - the total U.S. current account is in an historically unprecedented deficit. Prior to 1983, the biggest current account deficit ever faced by one country in a single year

was US$15 billion. The U.S. current account deficit in 1984 was $106.5 billion, and in 1985 $117.7 billion.

Deficits of this magnitude clearly cannot be sustained indefinitely. No country or region in the world is able on its own to reverse or to maintain enormous imbalances in its foreign accounts. If the wild fluctuations and the insupportable surpluses and deficits are not dampened, immense harm, often in the form of economic recession in the industrialized countries, will follow. In this respect the influence of the developing countries must be recognized. Canada sells more to the LDCs, for example, (7951.5 million Canadian dollars) than it does to either Japan (5775.3) or the European Economic Community (6982.6). United States sales to the developing countries are estimated to support two million American jobs.

Developing countries cannot indefinitely buy goods and pay interest and license fees unless their own export position improves. In the face of protectionism and low commodity prices, that's not a likely event. How damaging to our economies would be a developing country withdrawal?

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Immense. The World Bank calculated that the worldwide developing country current account deficit in 1985 was US$41.3 billion.

If some of you have gained the impression in the past that the South depends for money on the North - an impression to which all too many journalists and politicians seem to be wed - now is the time to alter your mindset. Total aid flows from North to South were US$22.4 billion in 1985. Simple arithmetic reveals that the North is making money off the south. Substantial amounts of money. In some years more than US$75 billion. In 1985 US$19 billion.

If economic interdependence was a fuzzy term to any of you prior to this morning, that figure may sharpen the image somewhat - even reverse your conceptions of who depends on whom.

ITEM - THE PHYSICAL ENVIRONMENT

From the earth, from the oceans and lakes, from the atmosphere do we derive the elements which sustain human life. If these are not wisely husbanded, our own lives and those of future generations are placed in jeopardy. No state of the world examination can fail to look at the physical environment. Happily, since the United Nations Environmental Conference in Stockholm in 1972, awareness of environmental issues has become more widespread. It does not follow, however, that governments are wisely responding to the need.

One of the globe's most precious and most vital commodities is soil. It is disappearing at an alarming rate, making a mockery of the phrase "dirt-cheap". Several forces are at work leading to this result. One is drought - most evident in the Sahel region of Africa and, more recently, in vast tracts of South-West Africa. Another is the unceasing demand for firewood in developing countries which depletes forests and encourages soil erosion. These two phenomena together contribute to desertification. A third negative force takes the form of improper farming

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practices, this as much in the industrialized countries as in the South. A fourth, again evident in both North and South, is urban sprawl. President Carter's Global 2000 Study projected that the world's arable land area, which in 1975 was 0.32 hectares per person, would decline by the year 2000 to 0.25 hectares per person. Worldwide, it declines 60,000 square kilometres each year.

Let me endeavour to transform those statistics into more recognizable form. Canada occupies the second largest land mass of any country in the world and is one of the world's major agricultural producers. Yet the Canada Land Inventory reveals that only 11% of Canadian land is capable of any form of agriculture, less than 5% capable of producing crops, and less than one half of 1% categorized as Class One land with no agricultural limitations.

In most instances, cities in Canada and the United States were sited in centuries past because of their proximity to prime agricultural land. Ironically, lands which are best for agriculture are often best for urbanization - flat, well-drained, easy to dig for foundations. The current growth of these cities is thus directly reducing

the acreage of farm lands. Environment Canada has calculated that, between 1976 and 1981 irretrievable losses of prime agricultural lands owing to urbanization amounted to 98,876 hectares - a good deal of it in the most fertile and climatically advantageous areas: the Fraser Valley, southern Ontario, the Montreal triangle. In the United States, the U.S. Department of Agriculture calculates that 2.51 million hectares of prime crop land were converted to urban and related uses between 1967 and 1975. And, as I mentioned a few minutes ago, these urban-growth trends are even more pronounced in the developing countries.

Not all agricultural lands are of a quality to sustain crop production. A vast acreage, less rich in soil nutrients, supports livestock. These are the range-lands, some 3.1 billion hectares of permanent pasture and grazing land which are twice the area of croplands. They are often referred to as "marginal" - less rainfall, fewer frost-free days - than the more verdant soils on one side of them, yet infinitely more productive than the deserts or barrens on the other side.

Much more than cropland, these rangelands project vividly their limits. If their carrying capacity is exceeded, they quickly deteriorate. In all continents there is vivid evidence of the results of non-sustainable management practices, where ecological limits have been exceeded and barrenness results.

In western Canada, strict government monitoring and financial self-interest determines both the unit size of cow-calf operations and its enforcement. In this way over-grazing and the deterioration of vegetation and soil are limited. In regions where poverty reduces choices, the carrying capacity is exceeded and self-reinforcing declines in range productivity are set in motion. The desert sets in. The U.N. estimates that 60% of world rangelands and rainfed croplands are now moderately to severely desertified.

Soil degradation and new soil formation are both slow-moving events, difficult to measure. How does one make these processes subject to measurement? How does one persuade often-illiterate populations in developing countries and equally-often uninterested populations in the

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industrialized countries that the future of all of us is at peril, the quality of life of all planetary inhabitants deteriorating, even though at a tortoise-like pace?

And particularly so, how do we do this in a period when much of the world is burdened by an excess of agricultural produce? When granaries in the OECD countries are overflowing, when farm income is down, when electoral successes are imperilled, where is there evidence of the long-term view, of the steps that must be taken now to avoid irremedial damage? A special report of the Canadian Senate's Standing Committee on Agriculture, Fisheries and Forestry stated in 1984, referring to soil deterioration, "Canada is facing the most serious agricultural crisis in its history and unless action is taken quickly, this country will lose a major portion of its agricultural capability."

Closely associated with rich soils in a healthy organic and synergistic complex are forests and fresh water. Their continued health cannot be presumed. The Brandt Commission in 1979 was one of the first to draw attention to the massive amounts of forest loss. It estimated that forest cover had decreased from 25% to 20% of

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the earth's surface over the previous 20 years. Every year throughout the Third World an area of forest is destroyed equal to one half of the United Kingdom. Closed tropical forests are decreasing by 10 to 20 million hectares a year according to the best available estimates, primarily as a result of poorly managed industrial logging. If these rates are not stopped by government actions, a U.S. Interagency Task Force predicted that by 2025 the world's closed tropical forests "will be nothing but scattered remnants, excluding sections of the Amazon Basin and central Africa." The atmospheric consequences of losses of this magnitude would be catastrophic with major shifts in rainfall patterns. The speed of forest depletion is staggering. Thailand lost one-fourth of its forest cover in a 10 year period. Costa Rica lost one-third in 10 years. Ivory Coast lost one-third in 8 years.

The rate of loss of open-forest areas in the Third World is almost as great. The reasons are conversion to agricultural use, often by primitive, shifting slash-and-burn techniques, fuelwood gathering, and over-grazing. It is estimated that close to one billion cubic metres of wood are harvested for fuel each year in the tropical zone. This

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rate will increase in lock-step with population increases because there is no economically advantageous fuel in sight for the foreseeable future. Nor is this wood being wasted. In many places families have such limited access to fuelwood or charcoal that they are able to cook only one hot meal per day.

Not surprisingly, Environment Canada scientists this summer reported that a "major global climatic change is now in progress." One cannot coincidentally pollute the atmosphere and destroy forests without interfering with weather patterns.

Fresh water is critical both to agricultural productivity and to forest growth. Natural phenomena such as drought or flood have for millennia led to tragic consequences. Drought is a primary cause of desertification in the Sahelian region. In Sudan the desert has extended by a 90 to 100 kilometre belt across the entire country in just 15 years according to UNEP, the U.N. Environment Programme. Over the past 50 years the Sahara has swallowed 650,000 square kilometres of former grazing lands, an area the size of Manitoba.

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Water diversion techniques to overcome drought, either by canals or pumps, can be environmentally hazardous. The best example of over-pumping exists not in a developing country but in the United States. The U.S. Geological Survey has drawn attention to the demands made upon America's largest aquifer, the Ogallala, which lies beneath seven states in the plains area. In 1953, 2,000 wells tapped this source. By 1983, the number had increased to 70,000. The USGS calculates that of the 122 billion cubic metres pumped from the U.S. groundwater supply each year, 26 billion - one fifth - are nonrenewable.

Another unnatural source of water despoilation is the emission into the atmosphere of toxic wastes from internal combustion engines and industrial smoke-stacks. The effect is the battle cry of millions in Eastern Canada and the North-East United States, as well as in Scandinavia and parts of central Europe: "Acid Rain". The acid-alkaline balance is measured as 7 on the pH scale. Because pH values are logarithmic, each drop of a point represents a tenfold increase in acidity. Clean, normal rain is slightly acidic with a pH of about 5.6. The rain now falling in the Adirondacks averages 4.2 - an increase in acidity well more

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than 10 times the norm. Rainfalls in North America have been recorded with pH levels below 2 - more acidic than vinegar or lemon juice. The long-term effects of this phenomenon on lakes, rivers and forests are highly destructive. The short-term international political effects are almost as unpleasant.

I've not mentioned the oceans where over-exploitation and pollution have reduced many catches, and damaged many fish-stocks, some seriously. This is doubly tragic because population pressures will place increasing pressure on sea-food as a source of protein. FAO estimates that global annual growth rates have dropped in the 1970s from the earlier 5% to only 1%. On this basis, supplies will fall short of demand by as much as 10 to 15 million tons by the end of the century. Fortunately, the Law of the Sea Treaty and the implementation of 200 mile exclusive economic zones introduces a control feature of considerable potential. Unfortunately, however, that treaty has not been signed by a number of industrialized countries, including most notably the United States. One of the reasons - it is not politically attractive to take the long view, the overview.

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ITEM - THE MILITARY ENVIRONMENT

The environment with the least accurate title in this state-of-the-world catalogue features weapons and weaponry. Ironically, this topic could equally qualify for consideration under the economics section. This for two reasons. First, an increasing number of experts concede that there exists no military purpose for nuclear weapons of any kind; that their role is political, including deterrence. Cost thus takes on a new importance. Second, the economic value of the defence industry and of international trade in weapons and weapons-systems is so large that it reduces to comparative unimportance many other sectoral activities. The Palme Commission stated that total military spending in 1982, worldwide, exceeded US$650 billion. That's more than one million dollars a minute. The 1985 issue of the SIPRI yearbook indicates that the arms spending component of that total has increased every year since. U.S. spending increased at an average annual rate of 9.2% in the period 1981-84. The average of the other NATO countries was 2.5% while the comparative Warsaw Pact figure was 2.2%.

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A lucrative portion of the international arms trade is from North to South. Modern, automatic-firing, small-calibre weapons are now so plentiful and so universally distributed that they have become a routine tool of trade for terrorists and common criminals alike. Uzis, Kalishnikovs, M-16s all abound. The value of arms transferred in commercial or official inter-governmental trade, all of it in conventional armaments, in the period 1980-84 was US$69.7 billion, with the United States continuing its long-held lead as the world's major arms exporter (39.7% of the total in that period, compared to 31.8% for the USSR and 9.1% for France). The value of the thriving underground trade in arms is impossible to calculate with any accuracy. The Third World's share of reported global military expenditures (which includes, of course, more than arms purchases) rose from 3% in 1955 to 20% in 1982 according to SIPRI, but has since fallen off somewhat. As developing countries have begun their own armaments industries, their capacity to meet their needs domestically has reduced their offshore purchases.

The defence industry in the United States is now so large and so geographically widespread that it is a

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critically important and structural segment of the U.S. economy. A major cut-back in defence expenditures would have severe disruptive effects on the economy and contribute significantly to a rise in unemployment. The same general circumstances obtain in France, Israel, The Republic of South Africa and to a lesser extent in a number of other industrialized countries. Israel, for example, manufactures a good deal of its own weapons requirements. It engages as well in a flourishing export trade. So much so that a recent Israeli study calls this a crucial factor in the country's economy. The value of Israeli arms exports is more than US$1 billion a year, which represents nearly 20% of all Israeli manufactured exports, and some 10% of all exports, according to a study by the Jaffee Centre for Strategic Studies at Tel Aviv University.

Into the developing world from a number of Northern sources are sold sophisticated weapons and weapons systems which are not needed, which cannot be maintained, and which can't be used effectively. These are sold willingly and purchased eagerly, often on attractive credit terms and - in the case of the United States and the Soviet Union - often as part of aid programmes. Statistics

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provided by the United States' Department of Defence reveal that in the decade 1971 to 1980, U.S. weapons were sold and transferred to 130 different nations.

In the East-West dimension, the primary focus of attention is on nuclear issues. Technological advances have already placed in grave doubt the viability of the current NATO strategy of flexible response, and threaten shortly to strip it of any remaining intellectual credibility. Flexible response includes as a vital ingredient the concept of assured destruction; it is this concept which underlies the deterrent: the second-strike retaliatory capability. That second-strike capability is imperilled because technology is now providing to war-heads guidance systems so accurate and delivery vehicles with such short flight times, that counter-force targeting strategies threaten the survivability of land-based ICBMs - a major element in the United States strategic triad and the preponderant portion of the Soviet Union's strategic arsenal. The accuracy of the new Trident II D-5 SLBM (with a CEP rating of well under 200 metres, less than half the CEP of the current Trident IC-4 SLBM) places in jeopardy Soviet ICBM silos and forces

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the USSR to move from a second-strike to a first-strike posture. A chilling prospect.

Strategic weapons which cannot survive a first strike are of no value. Weapons which are high value targets and which are not survivable are of a bilateral negative worth for they are, by definition, destabilizing. The planned introduction of new generations of ICBMs such as the MX, and the continued deployment of the SS-17 and 19 - all MIRV'd - yet all in vulnerable silos - are, by that definition, destabilizing. Destabilizing weapons reduce, not enhance, security.

Into this ferment has been introduced the SDI concept which demands an immense dedication of resources and a lengthy R & D lead-up. Critics argue that the likely earliest response of the Soviet Union would be an incremental increase in the number of strategic carriers and warheads, intended to overwhelm the ABM devices, and at less cost than the SDI itself. The United States NATO partners, in approving the SDI concept, attached four conditions to their approval. The Pentagon does not now speak of them.

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Theatre nuclear weapons are also the product of newer technologies and now assume a number of sophisticated forms which are designed to perform the same functions as a broad range of conventional munitions of both a projectile and a fixed-site (i.e. mines) type. They can be delivered by rockets such as the Pershing II and the SS-20 or 22, by aircraft, by cruise missile whether of an air, sea or ground variety, and by artillery.

These new theatre, or tactical, technologies place in issue a series of questions:

1. The command and control capabilities of forces armed and trained to employ conventional or nuclear weapons interchangeably.

2. The pre-siting close to the central European frontiers of nuclear mines which retain advantage only if detonated in the earliest minutes following any penetration by hostile forces. This is the "use them or lose them" syndrome.

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3. The timely ability to detect and adequately respond to incoming, accurately-guided warheads with flight times of 10 to 12 minutes.

4. The severability of theatre nuclear usage from strategic retaliation. This is the result of announced Soviet doctrine to retaliate against any use of nuclear weaponry in Europe by a strategic strike against European and North American targets. Thus are welded together in reality the previously compartmentalized theories of "first use" and "second strike".

Superpower relations appear increasingly to be subject to technology pushes. In less than five years there have appeared on one or both sides cruise missiles, new theatre rockets, anti-satellite and anti-ballistic weapons systems, SLBMs and ICBMs, binary chemical weapons, and emerging technology conventional weapons such as the multiple launch rocket system (MLRS). Once a new weapons system has passed through the lengthy and expensive research and development phases, a momentum exists which makes it difficult not to deploy it no matter how ineffective it is.

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Witness the Sergeant York. For that reason, there is reason to be concerned about the immense increases worldwide in military R and D. At this moment one out of every 4 scientists and technologists in the entire world engaged in R and D is working on weapons.

An added ingredient to the nuclear policy process is the evidence now flowing from the studies engaged in by scientists both East and West of the atmospheric effects of the surface explosion of nuclear weapons. The "nuclear winter" scenario which they describe as the likely result of the dissemination into the atmosphere of large quantities of dust and smoke is an effect to be added to the previously quantified consequences of blast, heat, radiation, and electro-magnetic pulse. The impact which these studies are making is derived in large part from the fact they are based on a limited employment of nuclear weapons, not on a massive exchange. It is of little comfort that the earlier estimates of smoke and debris have been shown by subsequent research to be excessively high. Of little comfort because the revised estimates indicate, if not catastrophic climatic effects, widescale environmental consequences.

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A massive exchange employing a large percentage of the currently available firepower is beyond any rational contemplation. Figure 5 conveys some sense of the reason why. The single dot in the centre square represents all the firepower expended in World War II, a grand total of 3 megatons. The other dots in their entirety represent the world's current nuclear arsenal. That arsenal is the equivalent of 6,000 World War IIs - 18,000 megatons. The top left circle of three dots - 9 megatons, or 3 World War IIs - represents the weapons deployed on one United States Poseiden submarine. The circle in the lower left hand corner represents 24 megatons, the firepower of a single U.S. Trident submarine. That firepower will be increased significantly with the introduction, commencing in 1989, of the much more powerful Trident II D-5 missiles. Any two squares on the chart contain 300 megatons - enough destructive capacity to destroy every large and medium size city in the entire world. SIPRI calculates that there now exists some 50,000 nuclear warheads, far in excess of any conceivable number of targets. For more than a year now the Soviet Union has respected its self-imposed moratorium on nuclear weapons test explosions. The United States asserts

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it has no intention to cease or even slow down its test programs. During the first year of the Soviet moratorium, the U.S. exploded 18 devices.

It is against this nuclear background that current arms-control and force-reduction talks are proceeding. With little evidence of any progress now or in the immediate future, negotiators are in session in several locations: in Stockholm where confidence building and security enhancement measures form the agenda, in Vienna where MBFR has been virtually stalemated since its beginnings in 1972, at the 40 nation Conference on Disarmament in Geneva which produces useful results but at a snail's pace, and at the re-commenced US-USSR talks in Geneva which take place in secrecy. No new multilateral arms-control treaty has come into effect since 1981 (the Inhumane Weapons convention) and with a single, regional exception (South Pacific), no multilateral nuclear weapon convention has been concluded since the Sea-Bed Treaty in 1971. The last US-USSR nuclear arms agreement was SALT II, signed June 18, 1979, but not ratified by the United States. It is highly unlikely it ever will be. The 1972 ABM Treaty is the subject of narrow re-interpretation while multi-billion dollar R and D efforts

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are underway on the SDI. These latter will sooner or later run up against provisions in not only the ABM Treaty but as well in each of the Partial Test Ban Treaty and the Outer Space Treaty. Both superpowers are engaged in immense naval build-ups (including the Soviet Union's first fixed-wing aircraft carrier) most of which is not subject to any arms control constraints.

Neither at the third CSCE follow-up conference scheduled for Vienna in November, nor at the on again off again super power summit, is there the slightest reason to believe that any meaningful nuclear or conventional arms control agreement will emerge. A number of states have declared publicly their lack of confidence in the superpower nuclear relationship. In mid-August, at Ixtapa, Mexico, they declared their intention to continue with undertakings to provide verification of any future test ban treaty. Canada has pursued similar work for several years.

The military environment cannot be considered on its own. It forms an integral part of any discussions about economic development both North and South, preferred forms of social structure, issues of conflict resolution,

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and policies of resource allocation. It is a category too sophisticated to be governed by uninformed emotion; it is at the same time a category so critical to continued human existence that it cannot be left in default to technologists and think-tank participants, those who now dominate the field.

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CONCLUSION

What are the prospects for the human race? Will we be wafted off into glorious tomorrows on the buoyancy of micro-electronics or genetic engineering? Or will we sink into a stifling quagmire of contradictory political options, or worse? Are there normative ingredients for a preferred future of the kind against which we can design policy and measure progress? I believe that there are, indeed that there must be if we are to proceed towards a functioning, self-sustaining international community. By my calculation, they are five in number:

1) The existence and preservation of a wholesome natural environment.
2) Economically resilient and politically stable countries.
3) A strong and equitable international trading and monetary system.
4) Accepted and institutionalized mechanisms for the peaceful settlement of disputes.
5) A dedication on the part of all major actors to an enhancement of human dignity.

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Pipe-dream? Far from it. Cold-blooded, hard-nosed realism. Never before has humanity toyed with circumstances leading to irremedial error. Nuclear error, environmental error, economic error. All are of a potential magnitude which makes them qualitatively different from any previous fault-lines. And in all-too-many instances, the human race appears, like lemmings, to be possessed of an irreversible momentum towards these irremedial errors.

Any one of these categories could be cataclysmic in itself. Unfortunately, each tends to inter-act with the others to make problem-solving more challenging, to make humility more necessary. Yet humility is not often evident today, not even in the face of staggering technological disasters. Too often the response to Challenger and Chernobyl is to place even more reliance on technology, even less on common sense and humanitarian instincts. How much of our apparent indifference is a product of our inability to measure, and how much our unwillingness to cry out? The time frames within which some of these slow moving events are evolving are no longer beyond our comprehension; the possibility of error becomes ever more evident notwithstanding the unforgiveable attempts to maintain

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secrecy. The Soviets delayed for days to acknowledge the full extent of the Chernobyl accident. The United States withheld for 29 years the fact that a bomber over New Mexico accidentally dropped a 10 megaton hydrogen bomb which, happily, did not detonate on impact.

Prior to her death a few years ago, Barbara Ward warned of the momentum of events. She wrote "The door of the future is opening onto a crisis more sudden, more global, more inescapable, more bewildering than any ever encountered by the human species. And one which will take decisive shape within the life span of children who are already born...."

Expressed that way, time assumes a more vital quality, a precious worth. This is the 500th anniversary of the birth of Andrea del Sarto, the Italian painter made famous by Robert Browning in his celebrated poem which included the memorable lines: "Ah, but a man's reach should exceed his grasp, Or what's a heaven for?" What indeed. But if man's grasp becomes ever greater, ever more greedy, that equation is lost. President Reagan's promise of financial assistance to overthrow the Sandinista government

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of Nicaragua is made on the 400th anniversary of the promise of financial aid of Pope Sixtus V to the Spanish to send an armada against England. The contras will not employ cannon balls and pikes, though their message is the same as that of King Philip II in 1586 - privilege and advantage and vested interest will not willingly cede to change. The management of change worldwide is the challenge of today. Not its prevention by military means, not its solution by technological fixes.

Closeted as each of us is with an ever-increasing number of people on a planet of finite size, we must realize that the human race cannot survive if arrogant absolutes are to become national policies. The world is a pluralistic community. Concepts of religious or racial or nationalist superiority are as dangerous as they are fallacious. Again, the economic structure of the world is a patchwork quilt. Clarion calls for purism are hypocritical and outrageous. So is any assumption that military force is a desirable substitute for negotiated settlement. It is in this sector more than any other that we in the North possess the ability to ensure our own salvation.

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Virtually all of the world's great military strategists from the 4th century B.C. Chinese, Sun Tzu, onward have advocated the necessity of limiting the use of armed force, of inflicting the least possible casualties, and of engaging in force only if a state's objectives could not be achieved by other means. Yet the 20th century record is dismal. World War I introduced the concept of unconditional surrender. World War II employed the concept of total war. Today, neither solemnly-concluded international treaties nor the most respected of religious teachings stand in the way of military planners who have targeted nuclear warheads at centres of population, who demand ever more lethal weapons of mass and indiscriminate destructive capability. The closely-reasoned message of the United States Catholic Bishops has thus challenged the concept of "just war", supported by the church since the rule of Constantine, and opted in the nuclear age for the more general Christian ethic of "non-violence".

In the nuclear age, security can only proceed from nuclear parity, not from an attempt at superiority. Past attempts at attaining superiority have led to nothing but instability and thus greater peril. There is not the

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slightest reason to doubt that the future will prove otherwise. Nothing is more important at the present time than that we back out of this insane nuclear posture in which both sides are fearfully dependent on weapons systems which are as unreliable as they are destabilizing.

It is essential that each side - the Warsaw Pact and NATO - accept that stable defence systems demand two ingredients: deterrence and reassurance. Deterrence is the effective discouragement of resort to war; the knowledge that the commencement of hostilities will result in a military response which would inflict unacceptable punishment. Reassurance is the maintenance of self-confidence within each alliance that one's own and one's adversary's military strength is adequate and intended to defend. If that vital balance between deterrence and reassurance is lost - and we are close to losing it - then the necessary political foundation for NATO will collapse, as will our common security.

How shall I close this all-too-long lengthy lecture? With the same words I have used in the past.

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The world we live in today is a much more complex place than yesterday's world. It is a world of dysfunction, disequilibrium, and discontinuity. Above all it is a world of inter-dependence in which no nation is able to withdraw or to act with impunity. The age of easy answers and grand designs is well behind us. The need carefully to balance avalanches of data, to assess the impact of a spectrum of alternatives, to consider the interests of a multitude of parties, this is the tedious but essential path through the minefields ahead. That path can be negotiated without question. But to do so we must look forward and abandon once and for all concepts of total victory and surrender, be they economic, political, or military. We exist today in a world where zero-sum games belong only in the computer arcades. In the real world, in every international field of activity, we all win, or we all will perish. Peter Drucker once wrote:

> "No one needs to be told that our age is an of infinite peril. No one needs to be told that the central question we face with respect to man's future is not <u>what</u> it shall be, but <u>whether</u> it shall be."
>
> (emphasis added)

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He then continues, and emphasizes that the requirements of our age are "tasks of today, and not tasks for the year 2000. But they are the tasks to which we have to address ourselves to deserve tomorrow."

As you set forth on your quest for the path to tomorrow, I wish you well. Yours are heavy responsibilities.